

GLOBAL BLUEPRINTS FOR CHANGE

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The Global Blueprints for Change contain guidance for working together to improve the capability to identify indicators of physical, social, enterprise, and environmental vulnerabilities throughout the world and to select and implement realistic solutions to reduce them towards acceptable levels.

Theme A: LIVING WITH NATURAL AND TECHNOLOGICAL HAZARDS

**Topic A.9: Mitigating the Interaction of Natural, Environmental,
and Ecological Disasters**

**“Promotion of Scientific and Technological Research for Hazards Mitigation in
Taiwan”**

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DISCLAIMER: This manuscript was prepared as a contribution to the first edition of the Global Blueprints for Change and for use in conjunction with the International Workshop on Disaster Reduction convened on 19-22 August 2001 in Reston, VA. The manuscript is a "work in progress" and has not been edited for policy and for conformity with the other Blueprints.

PROMOTION OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH FOR HAZARDS MITIGATION IN TAIWAN

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Scope: Hazards mitigation is a long-term multi-faceted task and its related policy should be based on the results of scientific and technological research. It takes persistent effort to attain the long-term goal. This Blueprint briefly summarizes the promotion efforts of research work for hazards mitigation in Taiwan and shares Taiwan's experiences with other nations.

Current Status: Typhoon, rainstorm and earthquake have often caused major disasters in Taiwan. Governments at all levels as well as the private sectors have made great efforts in hazards mitigation work. As a part of the governmental efforts to acquire appropriate mitigation technology, a series of five-year plans for hazards mitigation research was initiated in 1982. Although these five-year plans have produced some meaningful scientific and technological results, they lacked in general a feasible mechanism to integrate and to transform these results into implementable technologies. In order to improve this situation, the series of plans was transformed into the National Science and Technology Program for Hazards Mitigation (NAPHM) in 1997, emphasizing integration of efforts made by researchers in different disciplines and practitioners in various organizations.

Vision: A comprehensive and effective plan for hazards mitigation is very complex. With the understanding of the characteristics of natural hazards in general and Taiwan's hazards in particular, it is realized that mitigation measures involve subject matters ranging from hazards potential analysis, scenario simulations assessment, land-use planning, development of mitigation plans, establishment of mitigation organizations, to public education. All of these must be based on sound technology. The NAPHM was designed to produce the technologies needed and to promote implementation of these technologies in practice.

The Major Issues:

1. Establishment of databases, including natural and socio-economic aspects, needed for development and implementation of hazards mitigation measures.
2. Development of methodologies for hazards potential analysis and promotion of their actual applications.
3. Development of methodologies for risk assessment and scenario simulation.
4. Development of decision-support and display systems incorporating the assessment and simulation results above into the decision-making process.
5. Development of hazards mitigation plans and testing of these plans in some selected pilot areas for establishment of appropriate operational procedures.

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6. Review and revision of the current hazards mitigation management systems, its operations, and related codes and regulations.
7. Proposal for changes in current hazards mitigation operations and future improvement in mitigation work, based on the results of items 1 through 6 above.

Recommendations:

1. The work of scientific and technological research for hazards mitigation should be accelerated and must go hand in hand with mitigation practices. A hazards mitigation plan would be comprehensive and effective only when research results are fully applied in formulating such a plan.
2. It is important to continue the education and training of professionals dealing with hazards mitigation as well as the education of the populace for hazards perception, on scientific and technological basis.
3. Research work on the social and economical aspects of hazards mitigation should be properly enhanced in the future if the effectiveness of hazards mitigation work is to be further improved.

Conclusions: The basic goal of hazards mitigation is to reduce the risks of individual citizens and the society from hazards. The main objective of the scientific and technological research for hazards mitigation is to provide a sound and solid foundation for practical mitigation work. Thus, the development of effective hazards mitigation measures will be its central task. Through the implementation of these measures, it should be possible to reduce significantly the fatalities of people, loss of properties and destruction of the environment caused by natural hazards. In order to effectively implement these technology-based measures, complete integration of various sectors in the hazards mitigation field is required.

References:

1. *Planning Report of National Science and Technology Program for Hazards Mitigation - Phase I* , Office of the National Science and Technology Program for Hazards Mitigation, September 1997.
2. *Planning Report of National Science and Technology Program for Hazard Mitigation - Phase II* , Office of the National Science and Technology Program for Hazard Mitigation, January 2001.